could dramatically increase the number and volume of cord blood units collected.

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HEALTH ECONOMIC OUTCOME ANALYSIS OF STEM CELL MOBILIZATION WITH GRANULOCYTE COLONY-STIMULATING FACTOR (G-CSF) PLUS PLERIXAFOR VERSUS G-CSF ALONE IN PREPARATION FOR AUTOLOGOUS STEM CELL TRANSPLANTATION (ASCT) IN PATIENTS WITH NON-HODGKIN'S LYMPHOMAS (NHL)

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Background: Most commonly used mobilization methods for ASCT include G-CSF, however no standard approach has been established. Plerixafor (Mozobil®), a competitive inhibitor of CXCR4, when given with G-CSF mobilizes more CD34 cells/apheresis resulting in a higher total CD34 cells/kg yield. We consider the cost-benefit of G-CSF plus plerixafor (G + P) vs G-CSF alone (G) for stem cell mobilization in NHL patients undergoing ASCT.

Methods: We constructed a decision analytic model comparing G + P to G in patients with NHL. The probabilities in the model were taken from a recent randomized trial at Washington University (n = 41) comparing these two mobilization regimens. In the trial, patients received G + P or G+placebo for initial mobilization. In both arms, if minimal goal of 2×10^6 CD34 cells/kg was not achieved after 4 aphereses, remobilization was conducted with G + P. The model estimated costs for mobilization and remobilization, but didn't consider the transplant. The payor perspective was taken with allowed charges, including medication, estimated using Medicare allowable.

Results: In the G + P arm all patients (21/21) achieved the minimal goal of CD34 cells after initial mobilization and proceeded to ASCT, while in the G arm only 12/20 proceeded to ASCT. Of 8/20 remaining G-patients, 2 were never remobilized, 6 were remobilized, but of these only 4/6 achieved the minimal CD34 cell count required and proceeded to ASCT. Adjusting for the lower enrollment in the G arm, total allowed charges for mobilization of patients in the G + P arm was $109,480 more than patients in the G arm. Had additional mobilization been attempted for those patients in the G arm who failed mobilization or remobilization (n = 4), the costs in the G arm would have increased by $69,512, reducing the difference between groups to $39,968. We didn't consider treatment or social costs associated with the decision not to transplant following a failed mobilization, as the events associated with these care processes were not tracked in the trial. Conclusions: Taking a cost-benefit approach we found that the G + P regimen in this trial cost $1,998 per patient more than the G. This additional cost resulted in a 20% greater probability of transplant in the G + P arm. Given the small difference in cost, and large potential benefit, it is expected that future analyses considering the social benefit of successful transplant will show that the G + P regimen easily meets most accepted standards of cost-effectiveness.

	G + Placebo	G + P
Probability of transplant	80.0% (16/20)	100% (21/21)
Probability of remobilization	30.0% (6/20)	N/A
Total cost per patient (SD)	$ 12,458 (13,193)	$ 17,932 (8,206)
Incremental cost per patient	$ 5,474	
Estimated cost per remobilization*	$ 17,376	
Incremental cost after adjustment for failed mobilization	$ 1,998	

*Remobilization protocol included plerixfor

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HEMATOPOIETIC STEM CELL APHERESIS PRODUCTS WITH HIGH MID-COLLECTION WBC COUNTS ARE AN ACCURATE INDICATOR OF THE FINAL PRODUCT WBC COUNT AND ARE ASSOCIATED WITH TRANSPLANT RELATED ADVERSE EVENTS

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We randomly reviewed 159 patients (pts) at our institution who underwent hematopoietic stem cell (HSC) collection with either a COBE spectra cell separator (CS) (n = 85) or Fresenius AS 104 cell separator (F) (n = 74). Products collected using the CS had higher total WBC count when compared to the F (163 +/- 136 K/uL vs. 55 +/- 29 K/uL, p <0.001) but a lower percentage of mononuclear cells (MNC) (75% +/- 23% vs. 85% +/- 11%, p < 0.001). Unexpected transplant related adverse events were seen in 3 pts who experienced tonic-clonic seizures and 1 pt with delayed engraftment. These pts all received HSC apheresis products with WBC counts over 590 K/uL, which was significantly higher than the median WBC counts on all apheresis products, and all were collected using CS. No apheresis products were diluted prior to cryopreservation or infusion.

We subsequently reviewed 21 consecutive HSC apheresis products from 13 separate pts and analyzed WBC, MNC, and CD34 cell counts at 3 different time points, pre, mid and post-collection. Apheresis products with WBC counts greater than 400 K/uL were diluted with normal saline (NS) prior to cryopreservation. Pts' diagnoses were comprised only of hematological malignancies, and included both auto (n = 19) and allogeneic (n = 2) HSC collections. Products were collected using the CS (n = 10) and the F (n = 11). Two pts had post collection WBC counts over 400 K/uL and both were collected using the CS. Both products were diluted with NS prior to cryopreservation. One of the two products was associated with delayed engraftment and 84% donor chimerism at day 100. No other transplant related adverse events were identified.

Analysis of the pre, mid, and post cell counts on the HSC apheresis products revealed mid WBC values that accurately predicted post apheresis product WBC counts (Table). The ease and rapidity of mid apheresis WBC count analysis may allow the apheresis procedure to be modified if WBC counts greater than 400 K/ul are predicted. We plan to prospectively assess mid WBC counts on all apheresis procedures that use CS. Products with mid WBC > 400 K/uL will get additional plasma collected so the final product can be diluted with autologous plasma. Accurate and timely identification of high risk apheresis products can obviate the unnecessary dilution of all products and therefore help decrease the cost associated with cryopreservation of apheresed HSC products.

WBC, MNC and CD 34 Cell Counts Mid and Post Apheresis

	WBC (k/uL)		MNC (%)		CD34x10^6/kg	
COBE	MID	POST	MID	POST	MID	POST
MEAN +/- SD	273 +/- 230	281 +/- 186	76 +/- 22	86 +/- 16	3 +/- 4	6 +/- 8
RANGE	819	596	75	53	9	23
FRESENIUS	MID	POST	MID	POST	MID	POST
MEAN +/- SD	71 +/- 22	75 +/- 20	88 +/- 5	90 +/- 5	1 +/- 0.8	2 +/- 1
RANGE	69	67	20	16	2	4

Mid - cell counts mid way through a 10-12 L collection, Post -cell counts at the end of a 20-24 L collection

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RELATIVE EFFICIENCY OF CORD BLOOD RBC DEPLETION BY SEPAX ELUTRIATION AND MANUAL REDUCTION

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Infusion of cord blood units with high RBC volume has been reported to increase the health risk for recipients. Therefore the